

THE LARVA OF *HELIOCAUSUS LARROIDES*
(HYMENOPTERA, SPHECIDAE)

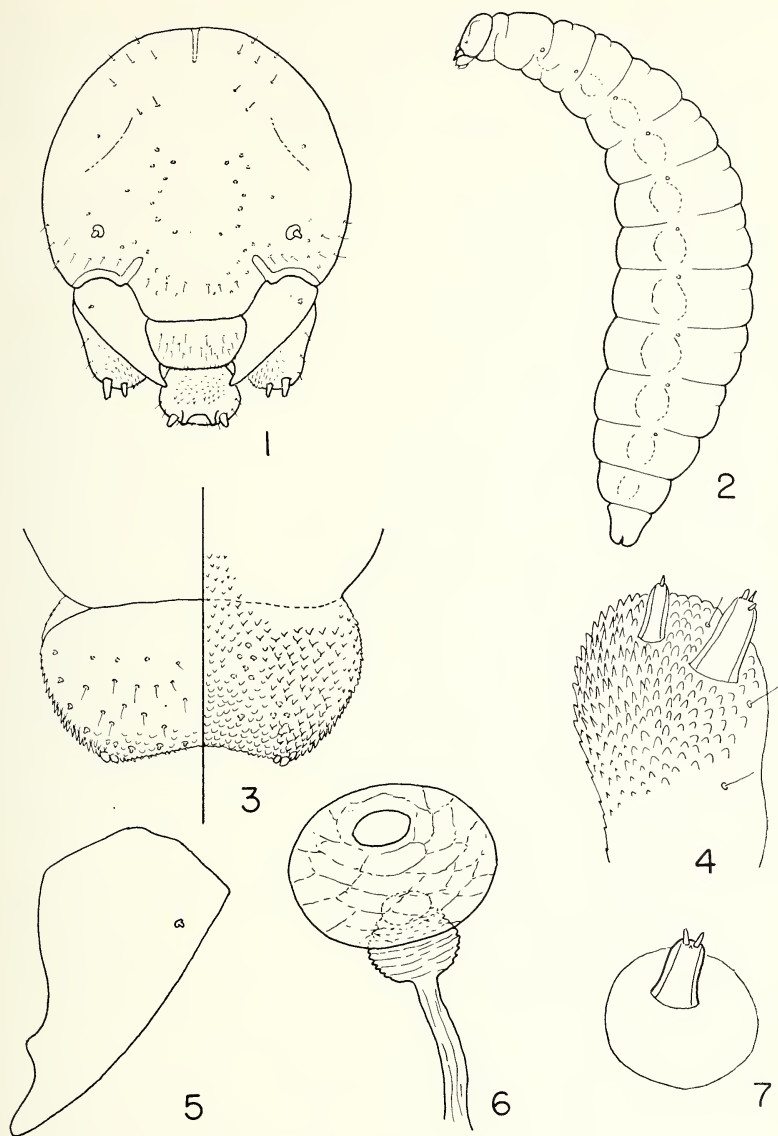
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Heliocausus is one of several interesting genera of sphecid wasps which has been known only from the adult stage. I therefore welcome the opportunity to describe larvae of *H. larroides* (Spinola) sent to me recently by Manfredo A. Fritz of Buenos Aires, Argentina. My description is based on four fully grown larvae from El Salto, Valparaíso, Chile, collected by Dr. Fritz on 24 December 1969. I shall defer a discussion of larval characters until after the description.

Body.—Length 9 mm; maximum width 2.8 mm. Fusiform, somewhat curved anteriorly; pleural lobes moderately prominent; terga indistinctly divided into two annulets each; apical abdominal segment rather slender and protuberant, the anus terminal (Fig. 2). Spiracles weakly pigmented, inconspicuous; atrium lined with weak, irregular polygons; opening into subatrium unarmed; subatrium abruptly widened and much folded just beneath atrium (Fig. 6). Integument mainly smooth and without setae or spinules, but extreme anterior part of prothorax, the “neck” region, densely spinulose, also thoracic venter somewhat spinulose and dorsum with sparse, minute setae, the largest about 20 μ long.

Head.—Subcircular, width .75 mm; height (exclusive of labrum) about the same; front of head with a pair of longitudinal, welt-like elevations just mesad of the antennae; coronal suture and parietal bands weakly developed; front surface of head weakly pigmented, light brown (Fig. 1). Antennal orbits circular, about 85 μ in diameter, antennal papillae barely longer than thick, 25 μ long (Fig. 7). Head very sparsely punctate, some of the punctures near the vertex, on the lower sides, and on the clypeus bearing short setae.

Mouthparts.—Labrum with about 24 strong setae as well as a subapical row of 16-18 small sensilla; apical margin spinulose, especially laterally; epipharynx mainly papillose, but the papillae grading into spinules medio-basally and laterally, also with a few small sensilla (Fig. 3). Mandibles approximately twice as long as their maximum width, with a single rounded tooth on the inner margin in addition to the apical tooth; base with a single lateral sensillum (Fig. 5). Maxillae densely spinulose along the mesal



Larva of *Heliocausus larroides* (Spinola). Fig. 1. Head, anterior view. Fig. 2. Body, lateral view. Fig. 3. Labrum (left) and epipharynx (right). Fig. 4. Maxilla. Fig. 5. Mandible. Fig. 6. First thoracic spiracle. Fig. 7. Antennal orbit and papilla.

margin; palpi strong, about $80\ \mu$ long, terminating in three large sensory cones; galeae more slender, about .7 as long as palpi, terminating in a single large sensory cone (Fig. 4). Labial palpi slightly shorter than maxillary palpi, slightly exceeding the blunt, paired spinnerets; oral surface of prementum with a patch of small spinules.

Discussion. — Despite the larrine-like appearance of adults of this wasp (giving rise to the specific name *larroides*), the larvae bear no resemblance to those of Larrinae. The presence of an antennal papilla, the terminal anal opening, the form of the mandibles, and several other features indicate that *Heliocausus* belongs in or near the subfamily Nyssoninae. In fact, it runs readily to Nyssoninae in my table of subfamily characters (Evans, 1959, p. 168), and in my artificial key to genera (ibid, p. 171) the genus keys out near *Sphecius* and *Gorytes* (Nyssoninae, Gorytini). The mandibles, labrum, and maxillae are especially similar to those of Gorytini. It should be added that Dr. Fritz found *H. larroides* preying upon leafhoppers, a distinctive (although not exclusive) gorytine attribute.

On the other hand, there are certain larval features not shared by any known Gorytini: the oral surface of the prementum is spinulose (as in Bembicini), the opening between the spiracular atrium and subatrium is unarmed (as in Philanthinae and a few primitive genera of Nyssoninae), and the apical abdominal segment is slender and protuberant (as in Philanthinae). I regard the Nyssoninae and Philanthinae as having had a common origin independent of other subfamilies (ibid, p. 183). While on the whole *Heliocausus* has many more larval characters in common with the Nyssoninae, the presence of some philanthine characters and some in common with generalized Gorytini suggests that the group may be a relict of a primitive nyssonine-philanthine stock. Manfredo Fritz informs me that he and Prof. H. Toro of Valparaiso have come to somewhat similar conclusions on the basis of adult structure; their paper is soon to be published in the Ann. Mus. Hist. Nat. Valparaiso.

REFERENCE CITED

EVANS, H. E.

1959. Studies on the larvae of digger wasps (Hymenoptera, Sphecidae). Part V: Conclusion. Trans. Amer. Ent. Soc. 85: 137-191.